

REMARKS

By the present amendment, claims 1, 3 and 4 have been amended to, among other things, further clarify the concepts of the present invention and/or additionally distinguish over the cited patents. Claim 5 has been cancelled. It is submitted that these amendments to the claims are helpful in distinguishing the subject claims over the cited prior art and do not raise new issues which would require further consideration and/or search. In addition, it is submitted that such amendments place the application in better form for appeal by materially reducing or simplifying the issues for appeal. Furthermore, no additional claims are presented without cancelling a corresponding number of finally rejected claims. In view of the above, it is submitted that entry of the above amendments is in order and such is respectfully requested.

In the Office Action, claims 1 and 3-5 again were rejected under 35 USC § 103(a) as being unpatentable over the cited patents to Yashiro and Steele et al. In making this rejection, it was asserted that the cited Yashiro patent teaches the work, method and device as claimed with the exception that it was acknowledged that the method of the patent does not teach (1) bending a material having the L- or U-shaped configuration as claimed nor (2) bending the material into a cylinder. As to the former (1), it was then asserted that a L- or U-shape is contained in the disclosed H-shape and thus it would be obvious to use either such shape. As to the latter (2), it was asserted that the Steele et al patent teaches this procedure. Reconsideration of this rejection in view of the above claim

amendments and the following comments is respectfully requested.

Before discussing the rejection in detail, a brief review of the presently claimed invention may be quite instructive. An important feature of the subject invention resides in forming a cylinder by bending a belt-shaped thick steel material by means of (1) a center roller, (2) a pair of bending rollers for bending the belt-shaped thick steel material, transferred along the center roller, which are disposed opposing the center roller at one side of the center roller, and (3) a pressing roller for pressing the belt-shaped thick steel material, which is disposed opposing the center roller at one side of the center roller and positioned between the pair of the bending rollers.

By using the center roller, the pair of the bending rollers and the pressing roller, the following effects can be obtained. That is, in attempting to bend a belt-shaped thick steel material, for example, having an L-shaped cross-section, by transferring the material along the center rollers, the material cannot be bent into a cylinder as easily as you bend a thin steel material such as an angle bar due to its thickness. Therefore, in accordance with the present invention, the pressing roller is provided between the pair of the bending rollers so as to press the portion between them onto the center roller side. As a consequence, the portion of the belt-shaped thick steel material positioned between the pair of the bending rollers retains the shape formed by both of the bending rollers, so that the bending process can be smoothly realized by both of the bending rollers, which makes it possible to form

the belt-shaped thick steel material into the cylinder easily. It is submitted that the patents to Yashiro and Steele et al, whether taken singly or in combination, fail to teach or suggest the bent work as recited in amended independent claim 1, the bending method as defined in amended independent claim 3 and the bending apparatus as defined in amended independent claim 4.

The Yashiro patent relates to a method and apparatus for bending an H-shaped steel workpiece having a center web and two parallel flanges extending at right angles to and connected by the web in the plane of the web by cold-bending. More specifically, the Yashiro patent teaches that the workpiece is formed by a single pressure roller 14 brought into pressure-contact with the upper surface of the upper flange 11 of the workpiece and a pair of spaced pressure receiving rollers 14' and 14' brought into pressure-contact with the lower surface of the lower flange 12 of the workpiece in Fig. 1.

In Fig. 5, the Yashiro patent discloses a method and apparatus for bending an H-shaped steel workpiece having a center web and two parallel flanges extending at right angles to and connected by the web in the plane of the web by cold-bending. In this method, a single pressure roller 21b is brought into pressure-contact with the upper surface of the upper flange 11 of the workpiece and a pair of spaced pressure receiving rollers 20a and 20a are brought into pressure-contact with the lower surface of the upper flange 11 of the workpiece. At the same time, a single pressure roller 21a is brought into pressure-

contact with the upper surface of the lower flange 12 of the workpiece and a pair of spaced pressure receiving rollers 20b and 20b are brought into pressure-contact with the lower surface of the lower flange 12 of the workpiece.

Therefore, the Yashiro patent only discloses the use of the single pressure roller 14 and the pair of rollers 14' and 14' in Fig. 1. In Fig. 5 of the Yashiro patent, the single pressure roller 21a, provided between the pair of rollers 20a and 20a under pressure-contact with the lower surface of the upper flange 11, only pressure-contacts with the upper surface of the lower flange 12 and does not pressure-contact with the lower surface of the upper flange 11. That is, the single pressure roller 21b and the pair of rollers 20a and 20a are used for bending the upper flange 11, while the single pressure roller 21a and the pair of rollers 20b and 20b are used for bending the lower flange 12.

Thus, the Yashiro patent does not use, among other things, a roller corresponding to the pressing roller of the present invention and completely differs from the presently claimed invention in this important respect. It therefore is submitted that the bending method and the bending device of the present invention are completely different from the method and apparatus of the Yashiro patent and the bent work manufactured by the present invention is also completely different from the bent work obtained by the Yashiro patent. As a consequence thereof, the teachings of the Yashiro patent does not achieve the excellent effects of the presently claimed invention.

It is submitted that the above-noted teaching deficiencies of the Yashiro patent are not supplied by the patent to Steele et al. The Steele et al patent discloses a steel band 22 used for an integral ABS exciter ring for cast iron hub. However, there is no teaching or suggestion in the Steele et al patent regarding, among other things, a pressing roller for bending the steel band 22. It is submitted that the bent work according to the presently claimed invention is completely different from the steel band 22 of the Steele et al patent and the bending method and the bending device of the present invention are also completely different from the method and apparatus of the Steele et al patent whether taken alone or in combination with the Yashiro patent. Consequently, it is submitted that one having ordinary skill in the art at the time the invention was made would not be led to combine the cited patents in the manner as alleged in the Action.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of the claims as amended over the cited Yashiro and Steele et al patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

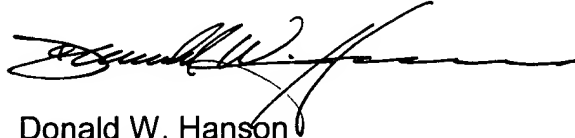
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Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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